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is the basis of their livelihood. They should then, and in the long run will, refuse to grant especial privileges to either position or wealth, but will expect work to be rewarded by recognition, and will rigorously exclude pretensions based on art or mere nomenclature. This they will do as necessary self-preservation, whenever the tendency may be in an opposite direction.

We regret to read in our esteemed contemporary, the *American Geologist*, an editorial apology for what most scientific men disapprove. We refer to the purchase of the scientific work of a man and the publication of it by the purchaser as though it was his own production. While this kind of a contract is perhaps legal, it is disreputable to the purchaser. A man under necessity for the means of a livelihood may make such a sale of himself without blame; but the man who buys, cannot in this way get a sound scientific reputation. Works of art placed before the public in this way, have been the cause of prosecution of a charge of false pretence against the pseudo-producer. We refer to the Belt case in London, where busts sold as the work of Belt were found to have been purchased by him from the real artist. Belt was mulcted in damages by the court after a trial which attracted much attention. But whatever the law may be, the moral obliquity and intellectual poverty that such a transaction implies on the part of the purchaser, are too plain for dispute.

RECENT LITERATURE.

BAUR'S MORPHOGENY OF THE CARPUS AND TARSUS OF THE VERTEBRATA.¹—The first portion of Dr. Baur's work upon the above subject deals with the Batrachia, excluding the Salientia; the second will treat of the Sauropsida; the third of the Mammalia. The orders of Batrachia accepted are the Ganocephala of Owen; the Rhachitomi, Embolomeri, and Stegocephala of Cope; the Proteida, Urodela, and Anura. To the Ganocephala belong the most ancient of four-footed vertebrates, but Archegosaurus

¹ Beiträge zur Morphogenie des Carpus und Tarsus der Vertebraten, von Dr. G. Baur. I Theil. Batrachia. Jena, Verlag von Gustav, Fischer.

alone furnishes data for the elucidation of the subject. Like *Eryops* this genus has five digits on the fore foot. The incomplete remains of this genus lead to the conclusion that the *Ganocephala* possesses more elements in both carpus and tarsus than are possessed by any other Batrachians (*Salamandrella* perhaps excepted), and that the carpus was very similar to the tarsus. To the *Stegocephala* belong the oldest forms of Batrachia, and in these the number of five digits is already usual. The carpus and tarsus of *Necturus* each consist of six elements in the adult; while in *Cryptobranchidæ* (*Urodela*), both in the American and Asiatic species, the carpus has eight, and the tarsus ten elements. The author puts into tabular form the various changes which occur in the number of the tarsal and carpal bones during growth, and gives examples drawn from all the urodelous families, characterizing each primitive element by a letter or number, and tracing the separations and incorporations of each with its neighbors. These tarsal and carpal tables are followed by a table of the number of the digits in various existing and extinct Batrachia. The rudiment of a sixth digit occurs in the *Cryptobranchidæ* and *Amblystomidæ*.

Of the three possible modes of origin of the digitated limb (*Cheiroterygium*): from the fin-form, viz., development from a many-rayed fin; development from a few-rayed fin that has been formed by the obsolescence of the greater part of the rays of a many-rayed fin; and entire sprouting off from a form which had entirely lost its finned extremities. Dr. Baur declares that neither embryology nor palæontology are favorable to the first. All that can be asserted with precision regarding the ancestral form of the *Stapedifera* is, says our authority, that, since all save strongly modified members of this group have a single bone in the first series of the limbs (humerus, femur), and two bones in the second series (radius, ulna; tibia, fibula), so the ancestral form must also have had a single ray in the first series, and two rays in the second series. If the two rays of the ancestral form ended each in a single ray, the remaining three digits of the pentadactyle extremity must have been developed by sprouting; but if the primitive form possessed five digits, the remaining three must represent the last remains of a many-rayed fin. As facts which seem to lend support to the sprouting theory (already advanced by Bruhl) Dr. Baur instances: (1) the secondary division of the rays of the *Ichthyopterygia*; (2) a case of the division of the one-rayed fin of *Protopterus*, noticed by Albrecht; (3) the development and regeneration of the extremities of the *Urodela*. When the development of the fins of *Ceratodus* and *Protopterus* have been studied; when that of such extremities as normally possess two centralia has been worked out; and when the few-toed extremities of *Proteus* are fully understood, a great step will have been made towards the solution of the problem. The treatise of Dr. Baur is the most complete

review of the subject yet written, and clears the way for future discoveries.—*E. D. C.*

CLAUS'S ZOOLOGY.¹—The new edition of the "Lehrbuch" of Dr. Claus is much improved over its predecessors, and it stands today the best accessible text-book. The illustrations have been increased in number (there are 792), while much new matter has been incorporated in the pages. As in the first edition, the taxonomy of the Vertebrates remains the poorest portion of the work. American authors have been drawn upon, but it is noticeable that the author does not notice the views of Brooks upon the development of Salpa, while a serious error occurs in the text of the Crustacea where Packard's term Paleocarida is used for Nebalia instead of Phyllocarida, which Packard gave to the group. Notwithstanding Bateson's researches, of which no mention is made, Balanoglossus still retains a place near the Echinoderms; in fact, the casual reader would infer from the "make up" that Dr. Claus regarded them as members of the same order as Synapta and Chirodota. The price of the volume (18 marks) is quite reasonable in comparison with that charged for the English translation.

RECENT BOOKS AND PAMPHLETS.

- Fewkes, J. W.*—A New Mode of Life among Medusæ. Ext. Proc. Boston Society. 1887. From the author.
- Haswell, W. A.*—Observations on the Early Stages in the Development of the Emu (*Dromæus novæhollandiæ*). Ext. Proc. Lin. Soc. N. S. Wales. 1887. From the author.
- Dabney, R. H.*—The Causes of the French Revolution. New York. 1888. From the author.
- Atkinson, G. F.*—Preliminary Catalogue of the Birds of North Carolina. Ext. Jour. Elisha Mitchell Society. 1887. From the author.
- Beddard, F. E.*—Note on the Systematic Position of Monitor. Ext. Anat. Anz. 1888.—Preliminary Note on the Nephridia of Perichæta. Ext. Proc. Roy. Soc'y, xliii. Both from the author.
- Brook, George.*—Reproduction of Lost Parts in the Lobster.—Notes on the British Species of Zeugopterus. Ext. Proc. Roy. Phys. Soc'y. Edinburgh. 1887.—Note on the Epiblastic Origin of the Segmental Duct in Fishes and Birds. Ext. Proc. Royal Soc'y. Edinburgh. 1887. Both from the author.
- Plateau, Felix.*—Recherches Experimentales sur la Vision chez les Arthropodes. Ext. Bull. Acad. Roy. Belgique. 1888. From the author.

¹ Lehrbuch der Zoologie, von Dr. C. Claus. Vierte Auflage. Marburg, 1887.